Claims

[c1] 1. A feedback active noise controlling circuit, comprising:

a bandpass controller for receiving a noise perceiving signal generated upon detection of an environment noise, for tuning a gain and a phase of a spectrum of the noise perceiving signal so as to generate an environment noise signal;

an audio compensating circuit for receiving an audio input signal so as to generate an audio compensating signal whose high frequency attenuation is higher than its low frequency attenuation;

an adder comprising a first input terminal and a second input terminal whose gain can be separately adjusted, wherein the first input terminal is electrically coupled to the bandpass controller for receiving the environment noise signal, and amplifying the environment noise signal to generate a noise cancellation signal, and the second input terminal is electrically coupled to the audio compensating circuit for receiving the audio compensating signal, and amplifying the audio compensating signal to generate an audio output signal; and

a current converting repeater electrically coupled to the

adder for receiving a signal synthesized from the noise cancellation signal and the audio output signal, and converting the signal into a current signal for driving a speaker.

[c2] 2. The feedback active noise controlling circuit of claim 1, further comprising a power delay circuit for receiving a power supplied to the feedback active noise controlling circuit, and delaying the power supply to the current converting repeater for a predetermined period of time when the power is turned on.

[c3] 3. The feedback active noise controlling circuit of claim 2, wherein the power delay circuit comprises:
a delay circuit that is configured to generate a delay control signal when the power is turned on; and
a transistor comprising a collector, an emitter, and a base, wherein the base is electrically coupled to the delay circuit for receiving the delay control signal, and delaying a power supply over a predetermined period of time before turning on the power received by the collector to the emitter according to the delay control signal.

[c4] 4. The feedback active noise controlling circuit of claim 3, wherein the delay circuit comprises a resistor and a capacitor that are serially connected.

[c5] 5. The feedback active noise controlling circuit of claim 1, further comprising a switch unit that is configured to control a power supplied to the feedback active noise controlling circuit, and have the audio input signal directly pass to the speaker and then output the audio input signal from the speaker when the power is cut off.

[c6] 6. The feedback active noise controlling circuit of claim 1, wherein the audio compensating circuit comprises:
a first resistor comprising a first terminal and a second terminal, wherein the first terminal of the first resistor receives the audio input signal, and the second terminal of the first resistor is grounded;
a second resistor comprising a first terminal and a second terminal, wherein the first terminal of the second resistor is electrically coupled to the first terminal of the first resistor;
a first capacitor comprising a first terminal and a second terminal, wherein the first terminal of the first capacitor is electrically coupled to the second terminal of the second resistor, and the second terminal of the first capacitor outputs the audio compensating signal;
a second capacitor comprising a first terminal and a second terminal, wherein the first terminal of the second capacitor is electrically coupled to the second terminal of the first capacitor; and

a third resistor comprising a first terminal and a second terminal, wherein the first terminal of the third resistor is electrically coupled to the second terminal of the second capacitor, and the second terminal of the third resistor is grounded.

[c7] 7. The feedback active noise controlling circuit of claim 1, wherein the noise perceiving signal is generated by sensing the environment noise using a plurality of microphone sensors that are connected in parallel.

[c8] 8. A feedback active noise cancellation headphone, comprising:
a speaker for receiving a noise cancellation signal and generate a soundwave signal with a phase reversed to an environment noise;
a plurality of microphone sensors for detecting the environment noise positioned in front of the speaker, and for converting the environment noise into a noise perceiving signal; and
an active noise controlling circuit electrically coupled to the microphone sensors and the speaker for receiving the noise perceiving signal, for generating the noise cancellation signal according to the noise perceiving signal.

[c9] 9. The feedback active noise cancellation headphone of claim 8, wherein the plurality microphone sensors is

comprised of two microphone sensors.

[c10] 10. The feedback active noise cancellation headphone of claim 9, wherein the two microphone sensors are disposed symmetrically in front of the speaker.

[c11] 11. The feedback active noise cancellation headphone of claim 8, wherein the plurality of microphone sensors is comprised of three microphone sensors.

[c12] 12. The feedback active noise cancellation headphone of claim 11, wherein the three microphone sensors are disposed evenly in front of the speaker.

[c13] 13. The feedback active noise cancellation headphone of claim 8, wherein the noise perceiving signal is generated by sensing the environment noise using the microphone sensors that are connected in parallel.

[c14] 14. The feedback active noise cancellation headphone of claim 8, wherein the microphone sensors are disposed in front of the speaker.